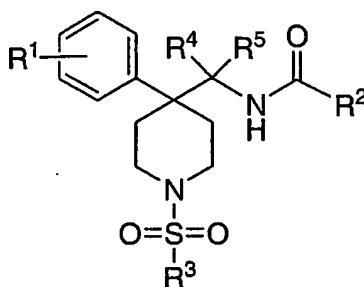


WHAT IS CLAIMED IS:

1. A compound of the formula I:



I

wherein:

R¹ is selected from the group consisting of:

- (1) hydrogen,
- (2) C₁-6alkyl, which is unsubstituted or substituted with halogen, hydroxyl or phenyl,
- (3) -O-C₁-6alkyl, or
- (4) halogen;

R² is selected from the group consisting of:

- (1) C₁-6alkyl, which is unsubstituted or substituted with halogen, hydroxyl or phenyl,
- (2) C₃-7cycloalkyl, which is unsubstituted or substituted with halogen, hydroxyl or phenyl,
- (3) phenyl, which is unsubstituted or substituted with one or more substituents independently selected from:
 - (a) -C₁-6alkyl, which is unsubstituted or substituted with
 - (i) halogen,
 - (ii) phenyl,
 - (iii) -NR¹⁰R¹¹,
 - (b) -O-C₁-6alkyl, which is unsubstituted or substituted with 1-6 fluoro,
 - (c) halogen,
 - (d) hydroxy,
 - (e) -SCF₃,
 - (f) -SCHF₂,
 - (g) -SCH₃,

(h) $-\text{CO}_2\text{R}^9$,

wherein R^9 is independently selected from:

- (i) hydrogen,
- (ii) $-\text{C}_{1-6}\text{alkyl}$, which is unsubstituted or substituted with 1-6 fluoro,
- (iii) benzyl, and
- (iv) phenyl,

(i) $-\text{CN}$,

(j) $-\text{NR}^{10}\text{R}^{11}$,

wherein R^{10} and R^{11} are independently selected from:

- (i) hydrogen,
- (ii) $-\text{C}_{1-6}\text{alkyl}$, which is unsubstituted or substituted with hydroxy, 1-6 fluoro or $-\text{NR}^{12}\text{R}^{13}$, where R^{12} and R^{13} are independently selected from hydrogen and $-\text{C}_{1-6}\text{alkyl}$,
- (iii) $-\text{C}_{5-6}\text{cycloalkyl}$,
- (iv) $-\text{pyrrolidinyl}$, which is unsubstituted or substituted with $\text{NR}^{10a}\text{R}^{11a}$,
- (v) benzyl, and
- (vi) phenyl,

(k) $-\text{CONR}^{10}\text{R}^{11}$, and

(l) $-\text{NO}_2$, and

(4) heterocycle, wherein heterocycle is selected from:

benzoimidazolyl, benzimidazolonyl, benzofuranyl, benzofurazanyl, benzopyrazolyl, benzotriazolyl, benzothiophenyl, benzoxazolyl, carbazolyl, carbolinyl, cinnolinyl, furanyl, imidazolyl, indolinyl, indolyl, indolazinyll, indazolyl, isobenzofuranyl, isoindolyl, isoquinolyl, isothiazolyl, isoxazolyl, naphthpyridinyl, oxadiazolyl, oxazolyl, oxazoline, isoxazoline, oxetanyl, pyranlyl, pyrazinyl, pyrazolyl, pyridazinyl, pyridopyridinyl, pyridazinyl, pyridyl, pyrimidyl, pyrrolyl, quinazolinyll, quinolyl, quinoxalinyll, tetrahydropyranlyl, tetrazolyl, tetrazolopyridyl, thiadiazolyl, thiazolyl, thienyl, triazolyl, azetidinyll, 1,4-dioxanyll, hexahydroazepinyll, piperazinyl, piperidinyl, pyridin-2-onyl, pyrrolidinyl, morpholinyl, thiomorpholinyl, dihydrobenzoimidazolyl, dihydrobenzofuranyl, dihydrobenzothiophenyl, dihydrobenzoxazolyl, dihydrofuranyl, dihydroimidazolyl, dihydroindolyl, dihydroisooxazolyl, dihydroisothiazolyl, dihydrooxadiazolyl, dihydrooxazolyl, dihydropyrazinyl, dihydropyrazolyl,

dihydropyridinyl, dihydropyrimidinyl, dihydropyrrolyl, dihydroquinolinyl, dihydrotetrazolyl, dihydrothiadiazolyl, dihydrothiazolyl, dihydrothienyl, dihydrotriazolyl, dihydroazetidyl, methylenedioxybenzoyl, tetrahydrofuranyl, and tetrahydrothienyl, and N-oxides thereof, which is unsubstituted or substituted

5 with one or more substituents independently selected from:

- (a) -C₁₋₆alkyl,
- (b) -O-C₁₋₆alkyl,
- (c) halogen,
- (d) hydroxy,
- 10 (e) phenyl,
- (f) trifluoromethyl,
- (g) -OCF₃,
- (h) -SCF₃,
- (i) -SCHF₂,
- 15 (j) -SCH₃,
- (k) -CO₂R⁹,
- (l) -NR¹⁰R¹¹, and
- (m) -CONR¹⁰R¹¹;

20 R³ is C₁₋₆alkyl, which is unsubstituted or substituted with halogen;

R⁴ and R⁵ are independently selected from the group consisting of:

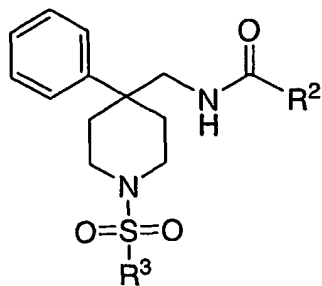
- (1) hydrogen, and
- (2) C₁₋₆alkyl,

25 or R⁴ and R⁵ may be joined together to form a cyclohexyl or cyclopentyl ring;

with the proviso that if R¹, R⁴ and R⁵ are hydrogen and R³ is unsubstituted C₁₋₆alkyl, R² is other than 2-methoxy-phenyl; and pharmaceutically acceptable salts thereof and individual diastereomers thereof.

30

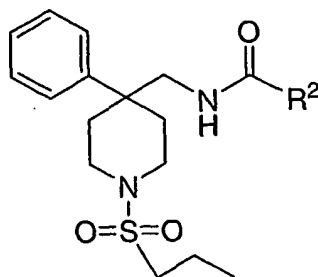
2. The compound of Claim 1 of the formula Ia:



Ia

and pharmaceutically acceptable salts thereof and individual enantiomers and diastereomers thereof.

3. The compound of Claim 2 of the formula Ic:



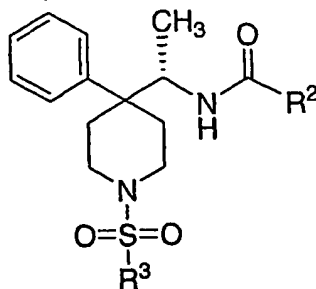
Ic

10

and pharmaceutically acceptable salts thereof and individual enantiomers and diastereomers thereof.

4. The compound of Claim 1 of the formula Ib:

15

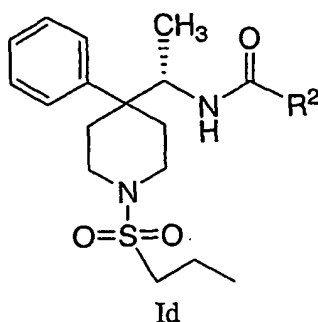


Ib

and pharmaceutically acceptable salts thereof and individual enantiomers and diastereomers thereof.

5. The compound of Claim 4 of the formula Id:

5



and pharmaceutically acceptable salts thereof and individual enantiomers and diastereomers thereof.

10

6. The compound of Claim 1 wherein R^1 is hydrogen.

7. The compound of Claim 1 wherein R^1 is fluoro.

15

8. The compound of Claim 1 wherein R^2 is phenyl, which is unsubstituted or substituted with one or more substituents independently selected from:

- (a) $-C_{1-6}$ alkyl,
- (b) halogen,
- (c) hydroxy,
- (d) trifluoromethyl,
- (e) $-OCF_3$,
- (f) $-OCHF_2$,
- (g) $-SCF_3$,
- (h) $-SCHF_2$, and
- (i) $-NH_2$.

20

25

9. The compound of Claim 8 wherein R^2 is phenyl, which is unsubstituted or substituted with one or more substituents independently selected from:

- (a) halogen,

- (b) trifluoromethyl, and
(c) -OCF₃.

10 5 10. The compound of Claim 9 wherein R² is phenyl, which is unsubstituted or substituted with halogen.

11. The compound of Claim 1 wherein R² is pyridyl, which is unsubstituted or substituted with one or more halogen.

10 12. The compound of Claim 1 wherein R³ is C₁₋₆alkyl.

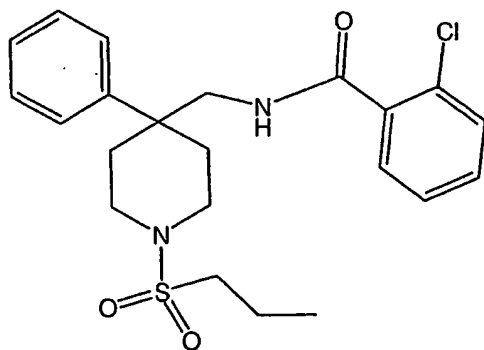
13. The compound of Claim 12 wherein R³ is -(CH₂)₂CH₃.

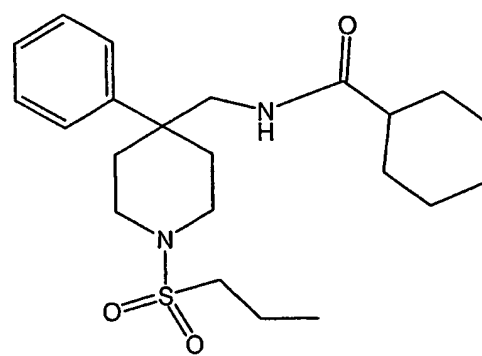
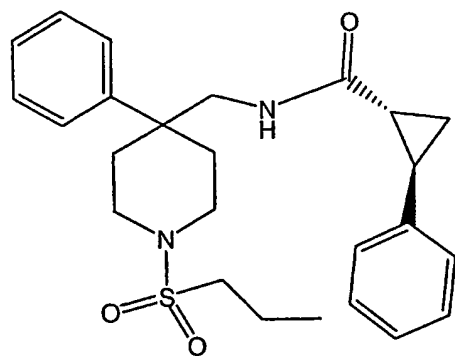
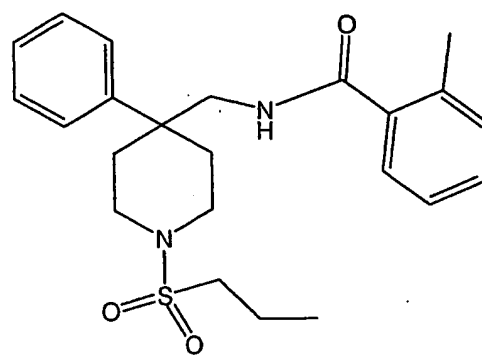
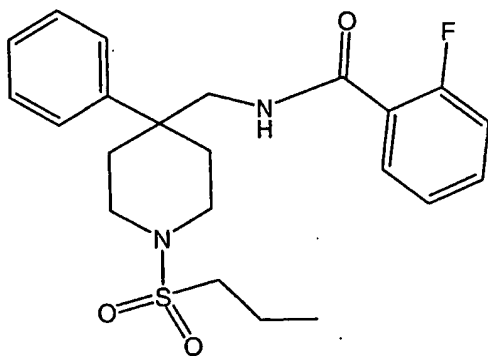
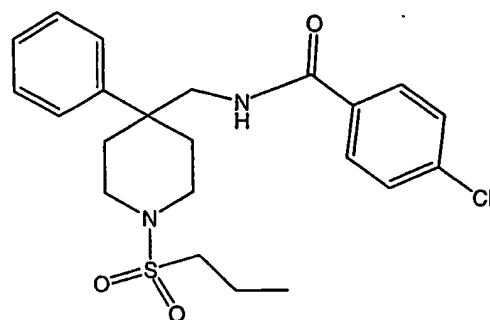
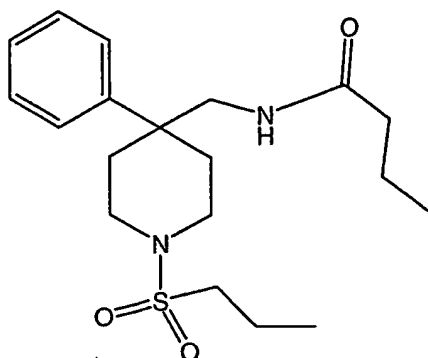
15 14. The compound of Claim 1 wherein R⁴ is hydrogen and R⁵ is hydrogen.

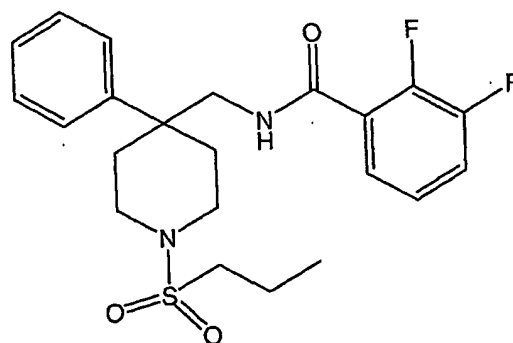
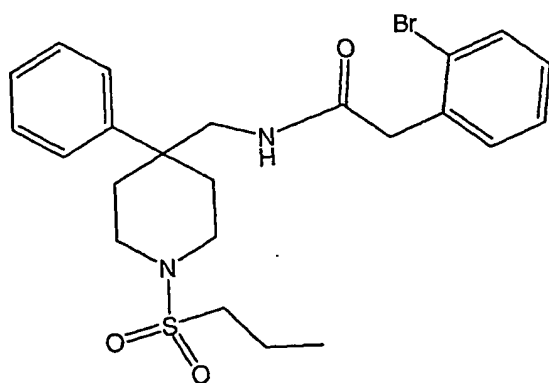
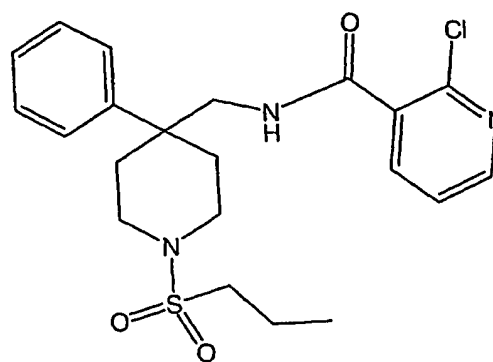
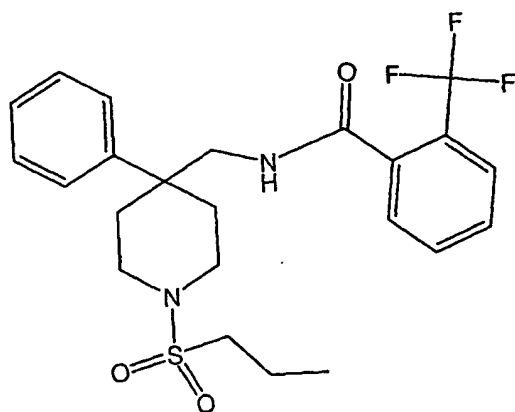
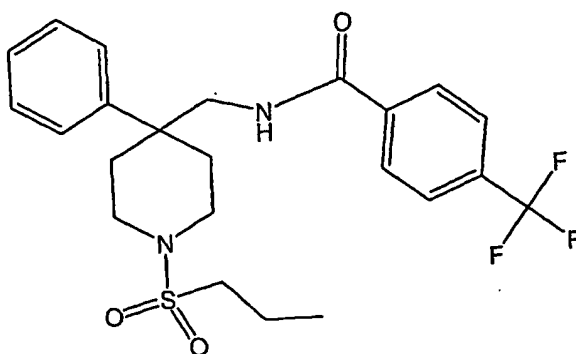
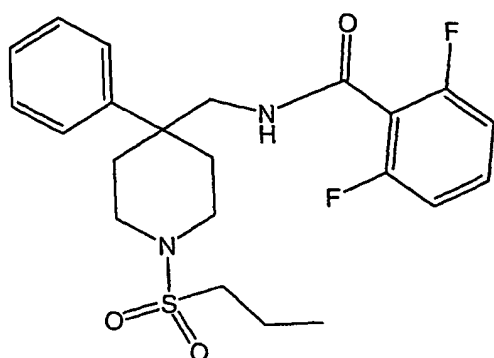
15 15. The compound of Claim 1 wherein R⁴ is C₁₋₃alkyl and R⁵ is hydrogen.

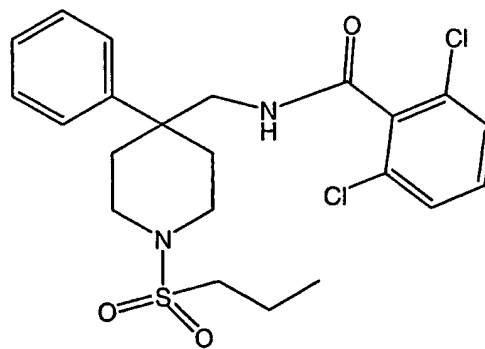
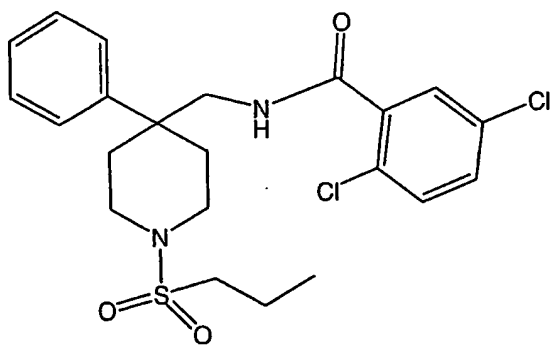
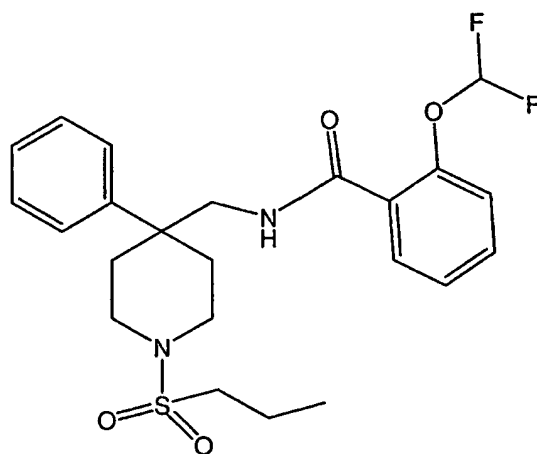
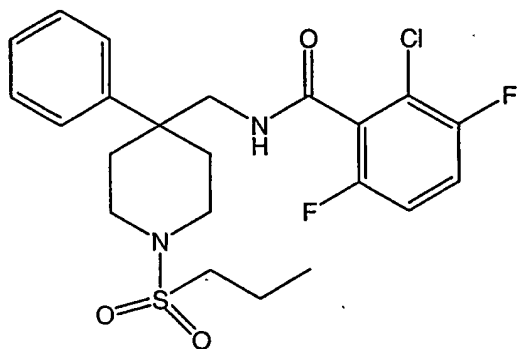
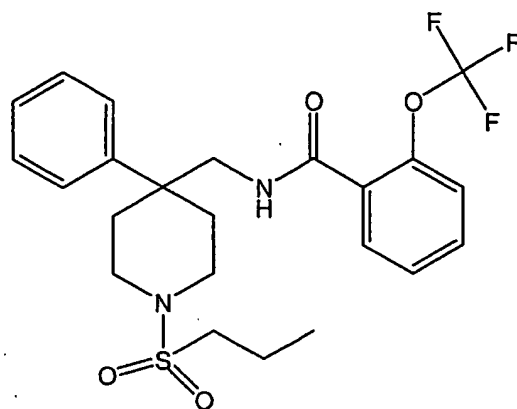
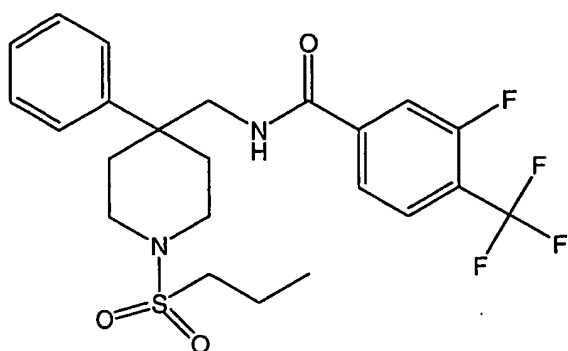
16. The compound of Claim 15 wherein R⁴ is -CH₃ and R⁵ is hydrogen.

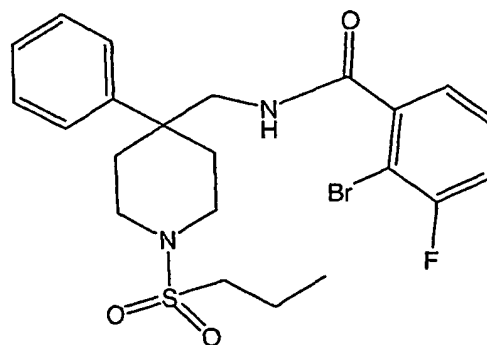
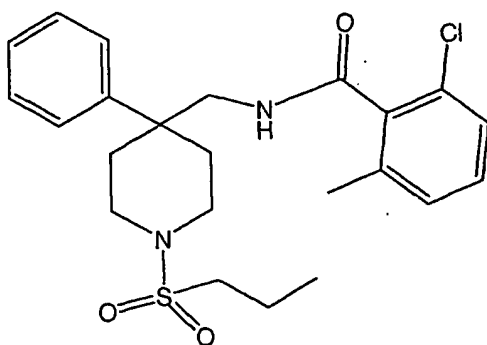
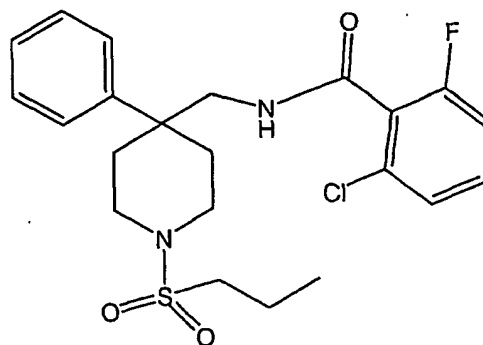
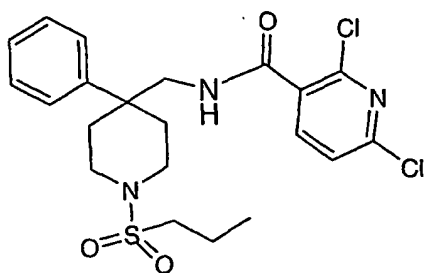
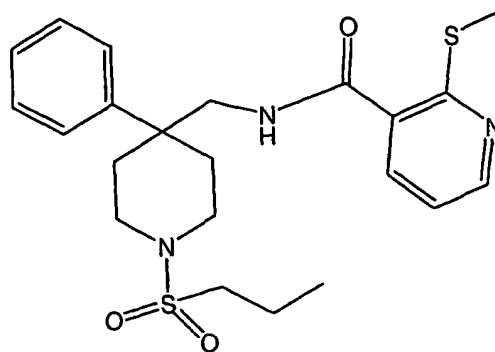
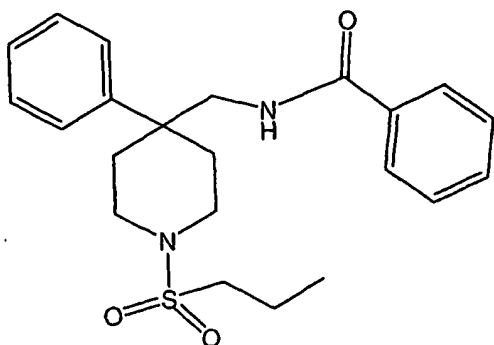
20 17. A compound which is selected from the group consisting of:

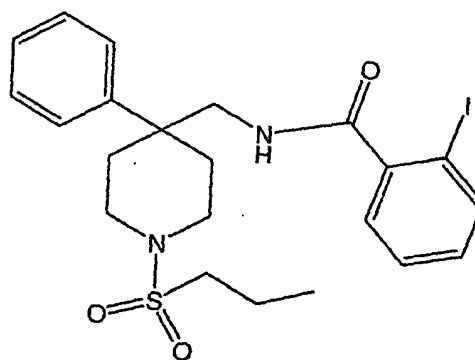
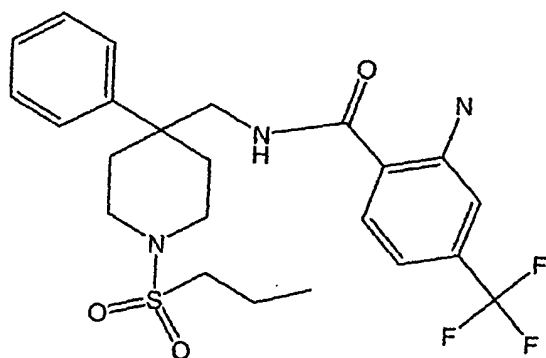
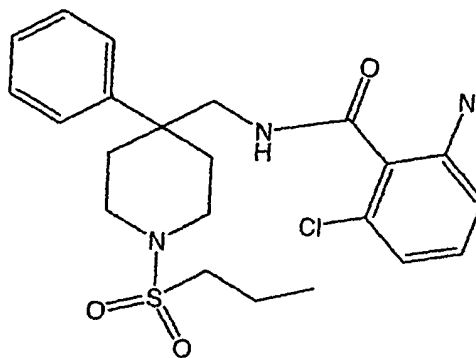
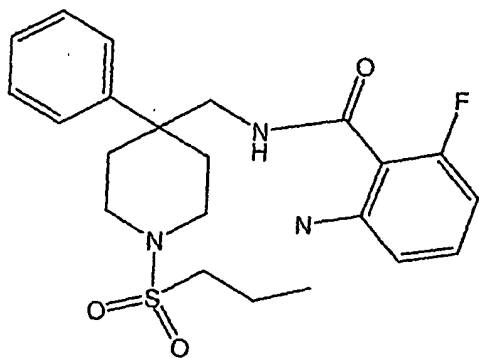
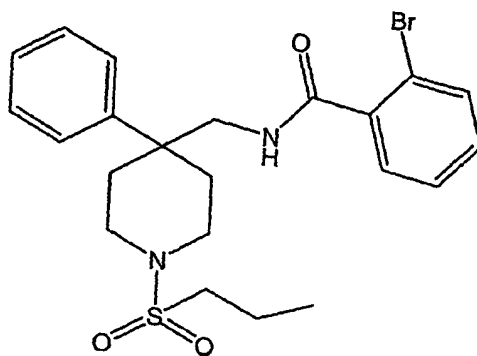
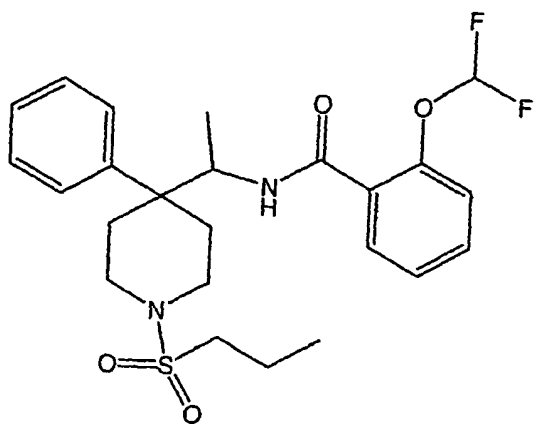


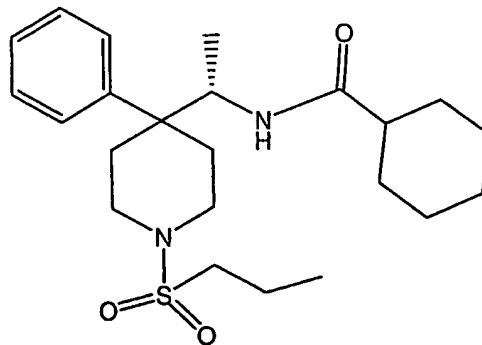
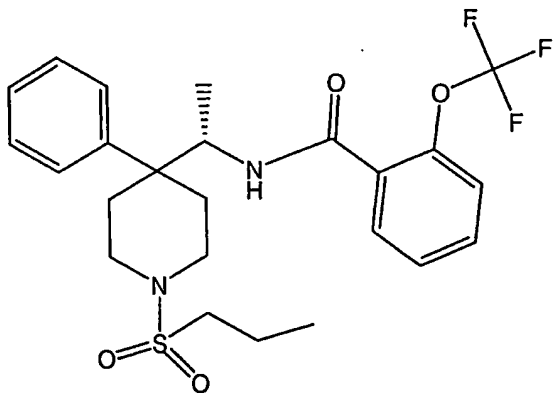
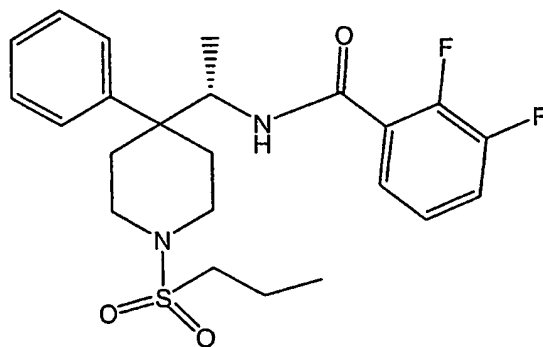
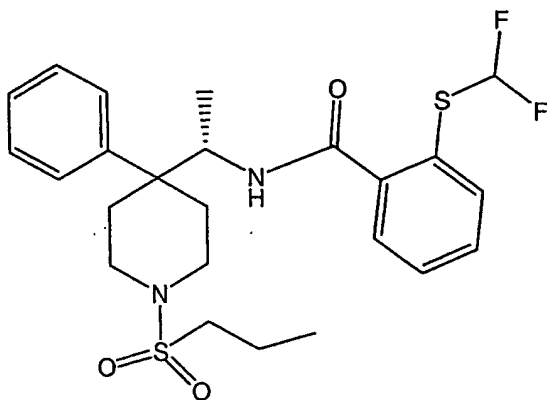
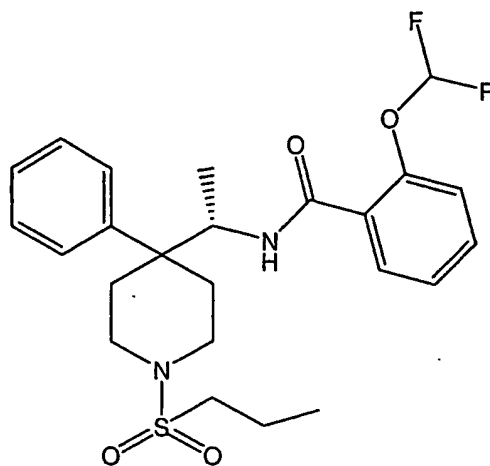
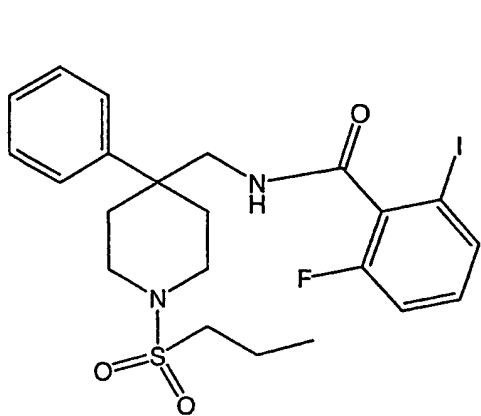


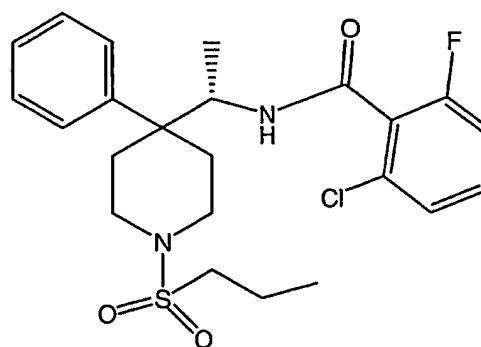
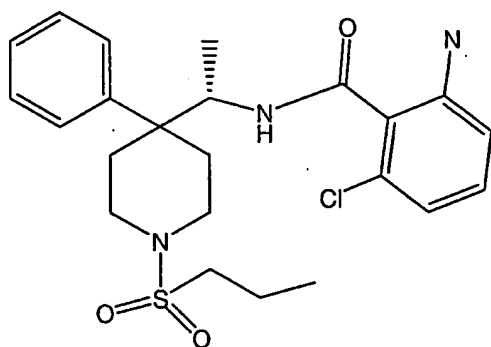
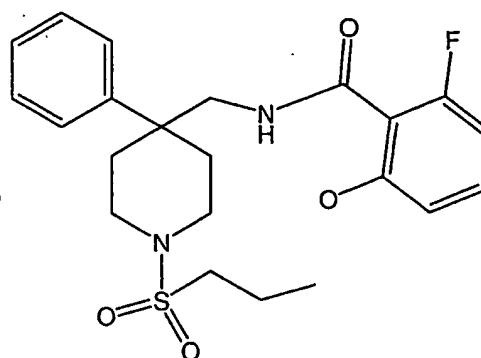
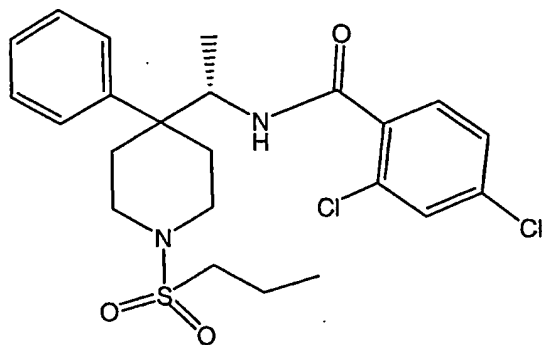
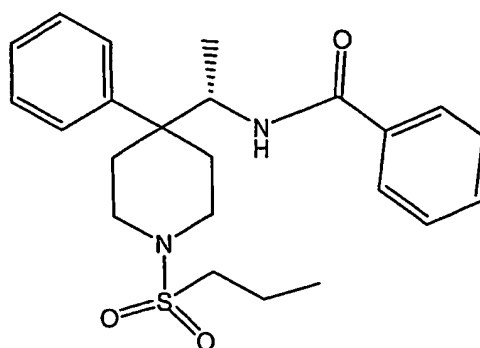
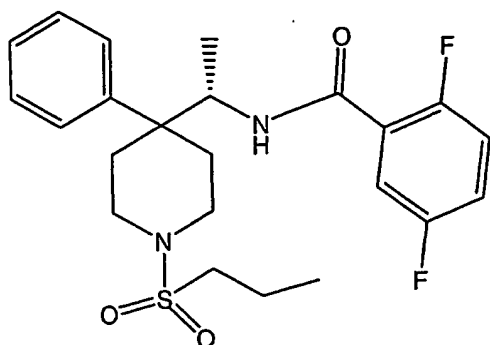


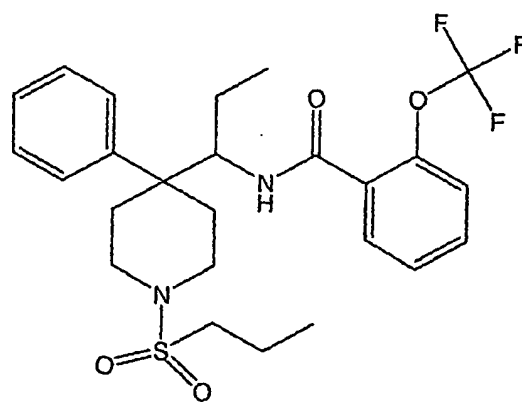
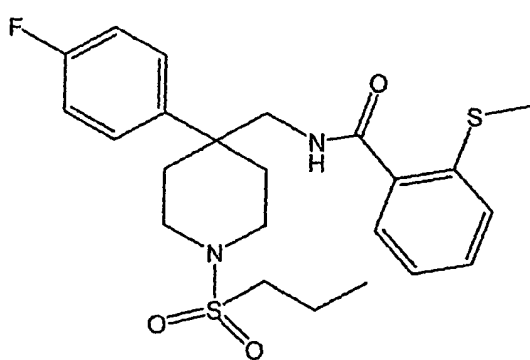
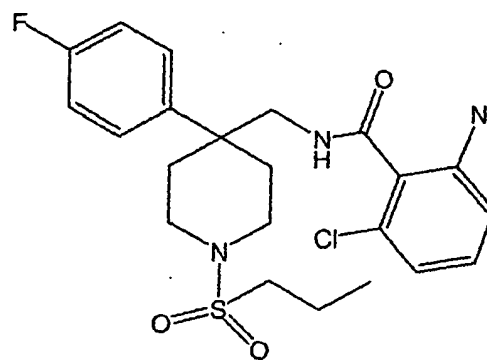
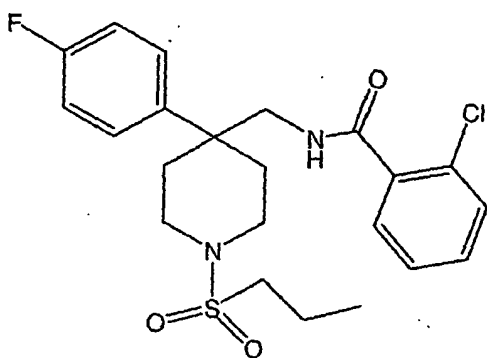
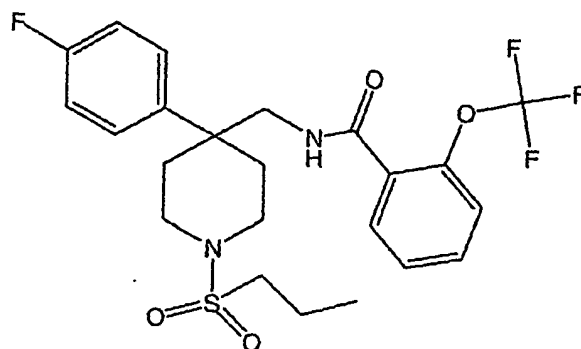
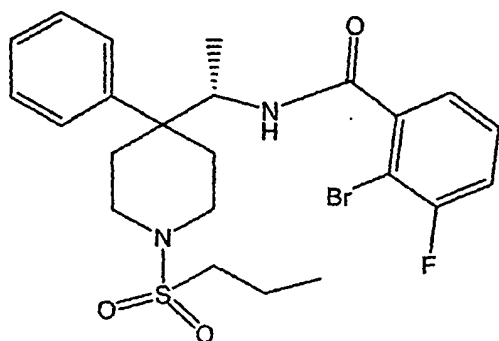


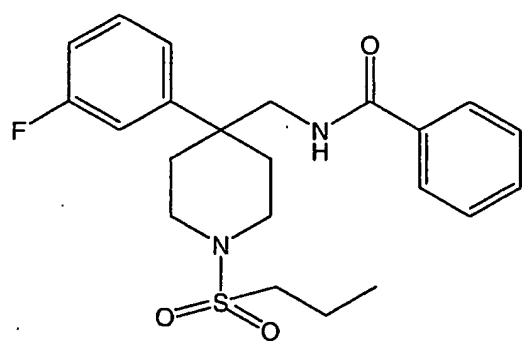
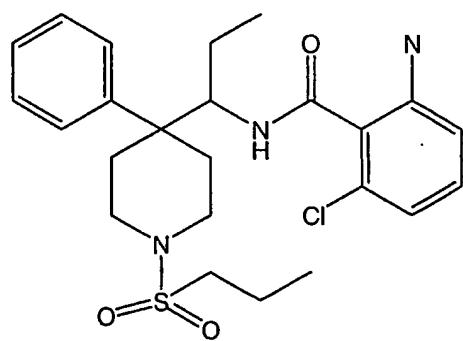
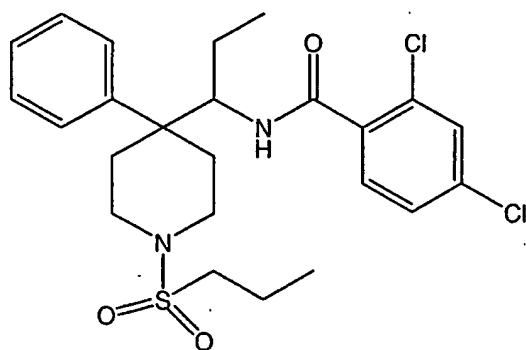
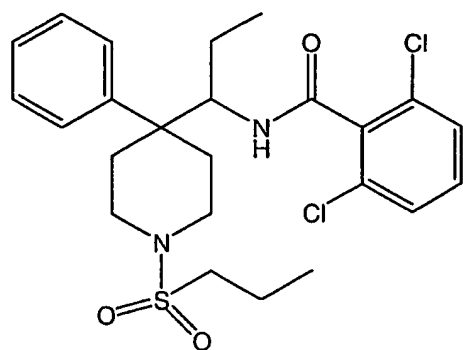
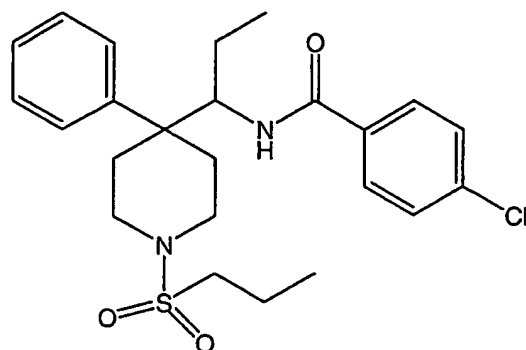
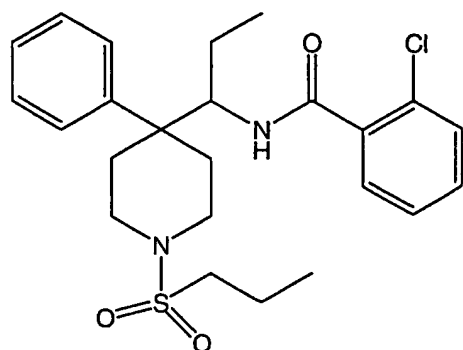


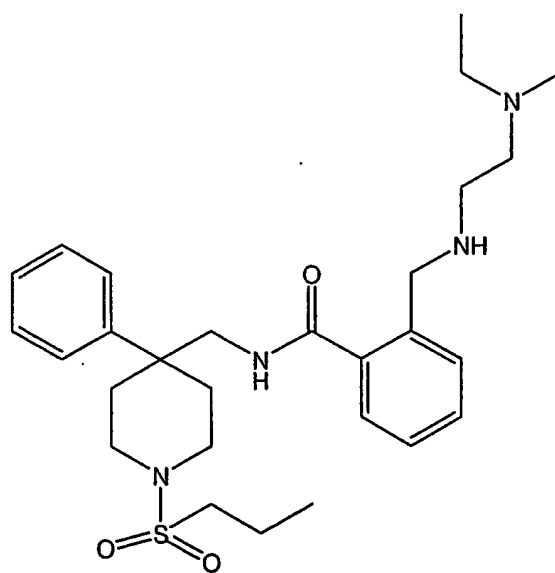
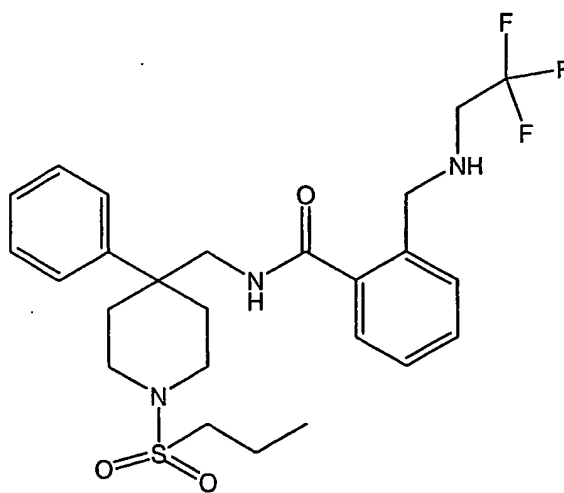
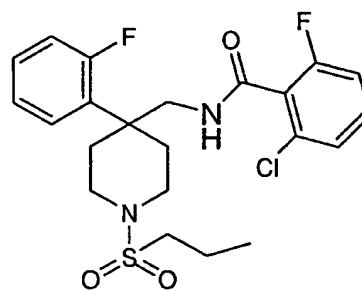
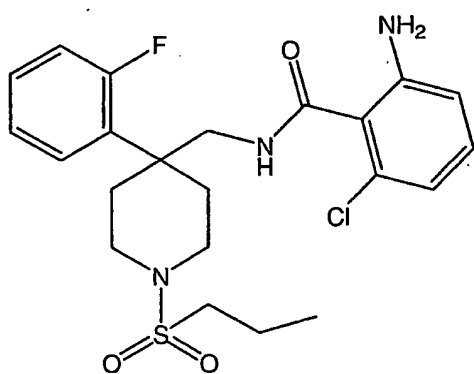
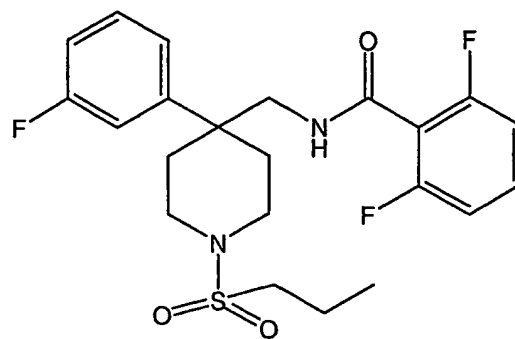
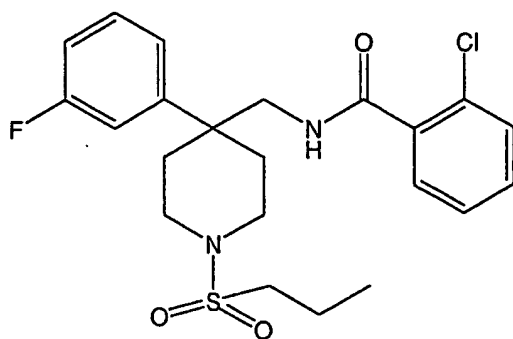


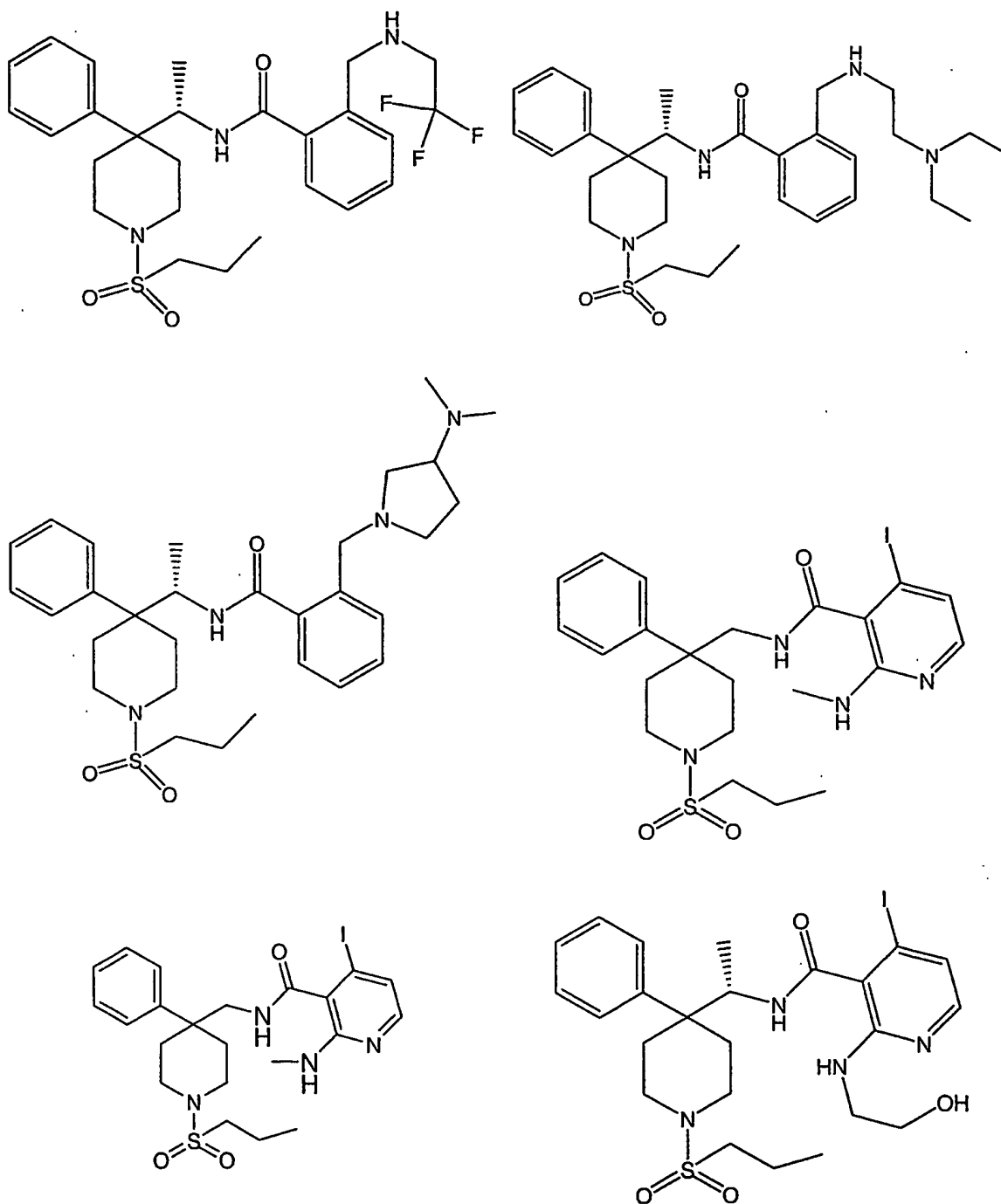












and pharmaceutically acceptable salts thereof.

18. A pharmaceutical composition which comprises an inert carrier and a compound of Claim 1.

5 19. A method for inhibiting the glycine transporter GlyT1 in a mammal in need thereof which comprises the administration of an effective amount of the compound of Claim 1.

10 20. A method for the manufacture of a medicament for inhibiting the glycine transporter GlyT1 in a mammal in need thereof comprising combining the compound of Claim 1 with a pharmaceutical carrier or diluent.

15 21. A method for treating a neurological and psychiatric disorders associated with glycinergic or glutamatergic neurotransmission dysfunction in a mammalian patient in need thereof which comprises administering to the patient a therapeutically effective amount of a compound of Claim 1.

20 22. A method for treating schizophrenia in a mammalian patient in need thereof which comprises administering to the patient a therapeutically effective amount of a compound of Claim 1.

23. A method for treating anxiety in a mammalian patient in need thereof which comprises administering to the patient a therapeutically effective amount of a compound of Claim 1.

25 24. A method for treating a cognitive disorder or dementia in a mammalian patient in need thereof which comprises administering to the patient a therapeutically effective amount of a compound of Claim 1.

30 25. A method for treating bipolar disorders in a mammalian patient in need thereof which comprises administering to the patient a therapeutically effective amount of a compound of Claim 1.

26. A method for treating depression in a mammalian patient in need thereof which comprises administering to the patient a therapeutically effective amount of a compound of Claim 1.